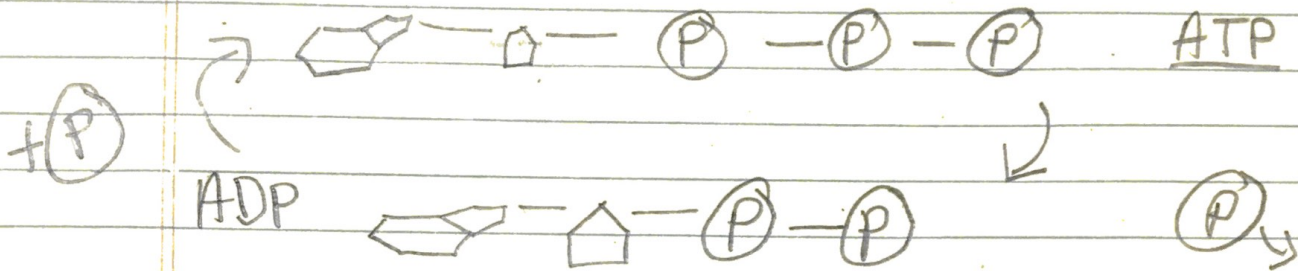


(1)

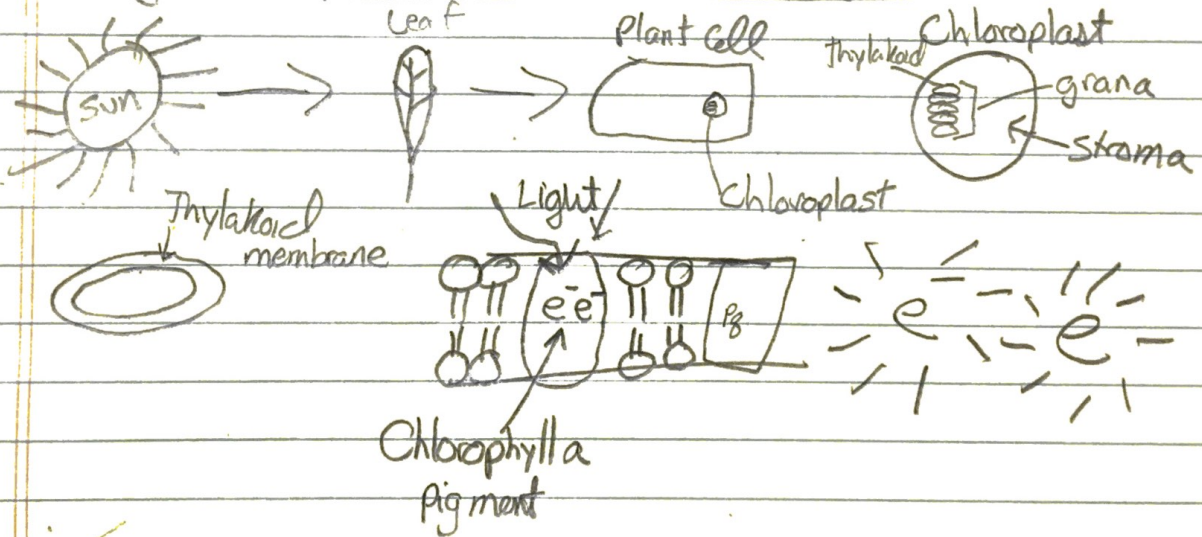
Photosynthesis Notes

ATP (Adenosine Tri Phosphate)

Adenine Ribose



Light Dependent Reactions (Light Rx)

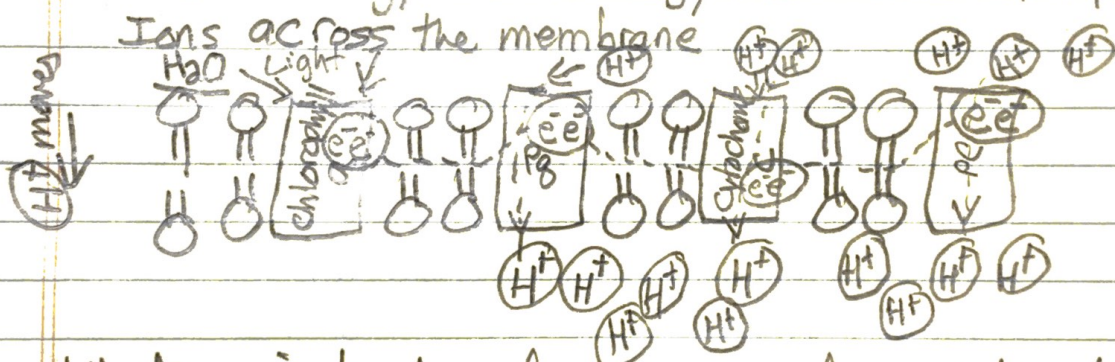


(2)

Photosystem II (thylakoid membrane)

Light strikes the chlorophyll a pigments which transfer solar energy to existing electrons. This raises the electrons to a higher energy level or state (not ground state).

Energized electrons move from one protein to the next protein. As energized electrons move, they "lose" energy. That energy is used to pump H^+

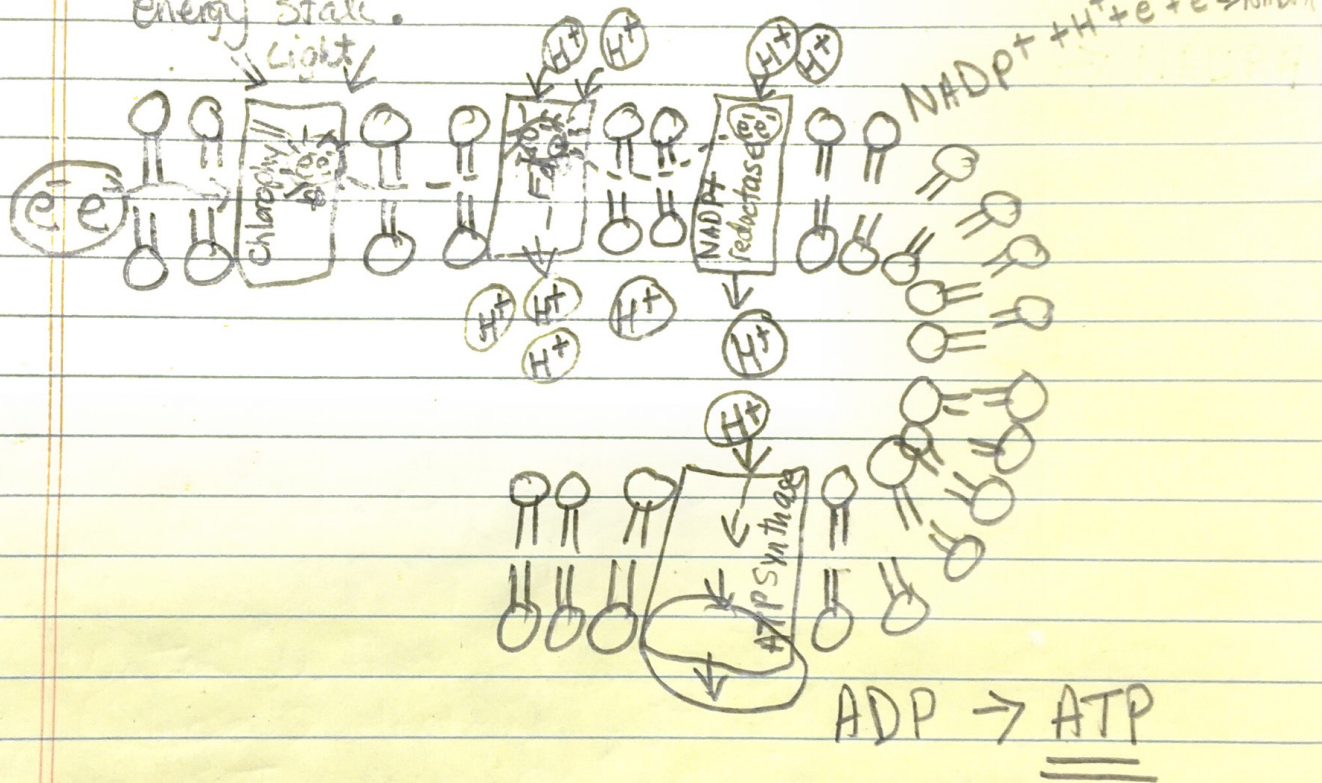


Water is broken down to produce H^+ H^+ and replaces 2 electrons e^- e^- which were used in PSII chlorophyll a. Oxygen binds with another oxygen (O_2) which is released (Breathe in)

(3)

Photosystem I (PSI) membrane of thylakoid in chloroplast.

electrons from Photosystem II are again energized by sunlight. Chlorophyll b Transfers energy to the 2 electrons, again raising their energy state.



18 ATP + 12 NADPH are used in the Calvin cycle

electrons used in PSI can be used to make NADPH or be reused in PSII to again help make ATP.

(4)

Light Independent Reactions (Calvin cycle) occurs in the Stroma

1. Carbon Fixation: CO_2 is broken down to have the Carbon atom bind with a 5 Carbon RuBP making an unstable 6 Carbon molecule. This 6 Carbon molecule is broken down into 2 3-carbon P5A. O_2 is released into the atmosphere.

2. Reduction: 2 P5A = 3P5 are converted into 2 P6A = 2G3P
USES 6 ATP for each turn
USES 6 NADH for each Turn

3. Regeneration: 3 turns of the cycle produces 6G3P.
uses 3CO_2

1 G3P are used outside of the cycle.

5 G3P are used to regenerate RuBP (uses 3 ATP)

2 G3P Combine to make 1 glucose molecule.

